Working Toward Acceptance of a Physician Order Entry System

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Background. The value of physician order entry systems to cost-effective health care management in an inpatient setting has been widely supported in information systems and health care management literature. Cost benefits can be shown in areas such as efficiency gained by electronic versus manual communication of orders. Reduction of errors can be shown to be a direct result of removing the "middle man" present with transcription of orders. These and other benefits go a long way to support and encourage physician order entry systems; however, "acceptance" of a physician order entry system by the physicians themselves can be elusive. At The Johns Hopkins Hospital, a multi-disciplinary team collaborated on the development of "OrderNet", Hopkins' physician order entry system. Through each stage of design and implementation, key factors were critical in working toward acceptance of physician order entry at Hopkins.

Method. Step by step, beginning with system selection and continuing through design, implementation, and post-implementation, physician participation was critical. The initial project team was made up of physicians and nurses from all clinical departments, other clinicians, support department representation, and information systems staff. All participants remained sensitive to and acted on any agreed-upon need to modify project organization in order to accomplish a specific goal. During analysis and design, close attention was paid to "practice versus policy" issues and to designing the flow of functions as closely as possible to how a clinician "thinks" about an order as the product would allow. During coding, reality checks with the clinical design team were performed on a regular basis. The joint efforts during implementation planning, training, and implementation itself resulted in a well-organized and well-supported first step for physician order entry at The Johns Hopkins Hospital, and spurred the beginning of a strong relationship for managing post-implementation support and issues. All these factors both contributed to acceptance of the current system, and pointed out additional areas to tap for greater acceptance of physician order entry.

Evaluation. A post-implementation evaluation was performed using a survey method for the purpose of identifying users' opinions about the OrderNet system, the strengths and weaknesses of the system, and avenues for potential change. The survey was developed by a third party group, with some guidance from a physician familiar with the OrderNet system. Questionnaires were distributed to the general medicine users of OrderNet as follows: all 8 nurse managers; 50% random sample of other registered nurses from the 8 units (n=99); all 96 medical house staff; 49 attendings and 19 fellows, based on volume of inpatient care. Follow-up on non-respondents was done. Before follow-up, participation was 78%. Ultimately the survey results reflected a general support for OrderNet from both physicians and nurses, although there were some significant differences between the two groups. Further interpretation of the survey results by the OrderNet project team, however, gave evidence to an important area of concern: while general inpatient units incorporated OrderNet well, even general inpatient floors with a more intense level of care found the user interface and the technology significantly lacking. This clear message of need based on level of patient care is a critical and deciding factor in how Hopkins will go forward with physician order entry.

Conclusions. The Johns Hopkins Hospital and Johns Hopkins Medicine have accepted and support the concept of physician order entry, both from a cost-effective and value-added standpoint. OrderNet has allowed the organization to take a first step in experiencing, in one clinical department, both a cultural change and a technological change in managing patient orders. It is critical that factors which led to acceptance and those which could further improve acceptance be recognized and become part of Hopkins' corporate memory. While the current OrderNet product is successful in many areas, clinicians need a system with a technically advanced architecture which more fully meets the needs of the complex health care environment at Hopkins. Keeping in mind all lessons learned in working toward acceptance of physician order entry, Hopkins will move forward to that end.

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